

405 KAR 5:062. Handling of materials.

RELATES TO: KRS 350.010(2), 350.240, 350.300

STATUTORY AUTHORITY: KRS 350.028, 350.029, 350.240, 350.300

NECESSITY, FUNCTION, AND CONFORMITY: KRS 350.028 authorizes the Environmental and Public Protection Cabinet to promulgate administrative regulations pertaining to noncoal mineral operations to minimize their adverse effects on the citizens and the environment of the commonwealth. KRS 350.029 authorizes the cabinet to promulgate reasonable administrative regulations to establish effective programs for the control of surface soil disturbance in connection with mining as defined by the Interstate Mining Compact. KRS 350.240 authorizes the cabinet to promulgate reasonable administrative regulations for the reclamation of land disturbed or removed in the mining of clay. KRS 350.300 authorizes the cabinet to formulate and establish an effective program and standards for the conservation and use of mined land. This administrative regulation establishes requirements for backfilling and grading, handling of wastes, handling of acid or toxic-forming materials, topsoil handling and conditioning, disposal of excess spoil, and additional performance standards for mineral operations on steep slopes.

Section 1. Backfilling and Grading. (1) General statement concerning backfilling. All overburden that is not placed in approved excess spoil fills shall be placed back in existing pits and graded.

(2) Surface drainage.

(a) Natural drainways in the area affected by the mineral operation shall be kept free from overburden except if approved by the cabinet in accordance with 405 KAR 5:032.

(b) If, during the mineral operation, it is necessary to cross a natural drainway, proper drainage structures shall be provided.

(c) Sufficient water retarding structures, silt control structures, and diversion ditches, constructed as approved by the cabinet in accordance with 405 KAR 5:032, shall be placed to control all runoff from the mineral operation before the work begins. These structures shall be located as near as possible to the disturbed area, and out-of-perennial streams unless approved by the cabinet in accordance with 405 KAR 5:032.

(d) Any water accumulating on a bench or similar area where the drainage is off the mineral operation shall be pumped or siphoned into sediment control structures.

(e) The moving of overburden to release accumulated water shall be prohibited unless a drainway can be constructed with the approval of the cabinet. The cabinet may make this approval if the cabinet finds that the release is necessary to prevent the development of instability, and the release will not cause additional environmental harm.

(3) If the mineral operation produces a highwall, at least one (1) suitable access shall be provided to lands above the highwall within each 4,000 feet of distance along the highwall. In addition, access shall be provided as necessary so no landowner is prevented access to his property.

(4) Spoil or overburden removed shall be placed, graded, and stabilized so that soil erosion, surface disturbance, and stream sedimentation will be minimized.

(5) All grading shall be kept current and shall be completed before equipment pertinent to the mineral operation is moved from the site unless approved, in writing, by the cabinet's inspector, after making a finding that removal of the equipment is not in conflict with the approved method of operation and will not impede compliance with contemporaneous reclamation requirements.

(6) If conditions develop in the mineral operation so that the approved reclamation plan and backfilling and grading plan cannot be carried out as planned, modifications of the plan shall be submitted by the mineral operator to the cabinet for approval in accordance with 405 KAR 5:032.

Section 2. Waste Materials. (1) The conduct of mining and the handling of refuse and other

mining wastes shall be done in such a way as to reduce adverse effects in the area and to protect the public and adjoining landowners from damage to their lands, to streams, and to other property.

(2) Upon final abandonment, all buildings, structures, metal, lumber, and other refuse resulting from the mineral operation shall be removed or buried.

(3) Spoil, overburden, refuse, or any other mining waste shall not be placed on a previous or potential slide area. The placement of the material shall be subject to approval by the cabinet in accordance with 405 KAR 5:032.

(4) Unless specifically authorized by the cabinet by a permit from the Division of Waste Management, household wastes or other wastes, generated off site, shall not be placed within the pit area or within the permit boundary of a mineral operation.

Section 3. Acid forming or Toxic Forming Materials. (1) All acid or toxic forming material shall be buried with not less than four (4) feet of clean fill as cover.

(2) Measures shall be taken to prevent stream and soil pollution, such as placement of acid or toxic forming materials outside of natural drainways.

(3) The mineral permittee shall conduct testing of materials as directed by the cabinet in order to prevent stream and soil pollution.

Section 4. Topsoil Handling. (1) General requirements.

(a) If practicable, all topsoil or subsoil to be saved for redistribution, specified under subsection (2) of this section, shall be removed as a separate layer or layers from the area to be disturbed and shall be segregated from other materials.

(b) If practicable, after removal, these materials shall be redistributed immediately to backfill areas, or otherwise stockpiled.

(c) After redistribution, if the topsoil becomes encrusted and hard, it shall be scarified prior to seeding.

(2) Soil removal. For areas where topsoil is to be removed and saved as a plant growth medium:

(a) Vegetative cover that would interfere with the salvage or use of the topsoil shall be cleared. Herbaceous vegetation and other small plant forms which will add to the organic constituency of the topsoil, but do not interfere with topsoil salvaging, may be retained along with the topsoil.

(b) All the topsoil present in the area to be disturbed shall be removed and segregated for redistribution.

1. If less than six (6) inches of topsoil is present, then at least the upper six (6) inches of soil shall be removed and segregated for redistribution, except where less than six (6) inches of soil is present.

2. If less than six (6) inches of soil is present, whatever soil and subsoil is available, at the area to be disturbed, shall be removed and segregated for redistribution.

(3) Soil storage.

(a) Soil materials removed pursuant to subsection (2) of this section shall be stockpiled only if it is impractical to promptly redistribute the materials on regraded areas.

(b) Stockpiled soil shall be selectively placed on stable areas, outside of water drainways and shall:

1. Be protected from wind and water erosion through the seeding of quick cover grasses or legumes and application of mulch;

2. Be seeded with perennial grasses and legumes if the soil is to be stockpiled for more than two (2) years; and

3. Be protected from unnecessary compaction.

(4) Soil amendments.

(a) Lime shall be applied to redistributed topsoil in an amount to obtain a buffer pH of six and four-tenths (6.4).

(b) Adequate fertilizer shall be applied to redistributed topsoil. At a minimum, 100 pounds of nitrogen (N) and 100 pounds of phosphate (P_2O_5) shall be applied per acre.

(c) Areas where topsoil has been redistributed shall be seeded with quick cover and permanent grasses and legumes as soon as possible during first normal period of favorable planting.

(d) Suitable mulch or other soil stabilizing practices shall be used in addition to temporary cover on all regraded and topsoiled areas to control erosion, promote germination of seeds, and increase the moisture retention capacity of the soil. The cabinet may, on a case-by-case basis, waive the requirement for mulch if the cabinet finds, based on seasonal, soil, and slope factors, that the temporary vegetative cover will achieve proper erosion control until a permanent cover is established, except that no waiver shall be granted for any area having a slope greater than ten (10) percent.

Section 5. Disposal of Excess Spoil. (1) General. Excess spoil shall be placed in designated disposal areas, within a permit area, in a controlled manner to:

(a) Minimize the adverse effects of leachate and surface water runoff from the fill on surface and ground water;

(b) Ensure mass stability and prevent mass movement during and after construction; and

(c) Ensure that the final fill is suitable for reclamation and revegetation compatible with the natural surroundings and the approved postmining land use.

(2) Location. If possible, placement in pits shall be the preferred location for disposal. Otherwise the disposal area shall be located on the most moderately sloping and naturally stable area available among those upon which, in the judgment of the cabinet, spoil could be placed in compliance with all applicable requirements of 405 KAR Chapter 5, and shall be placed, if possible, upon or above a natural terrace, bench, or berm if this placement provides additional stability and prevents mass movement.

(3) Placement in pits. On a case-by-case basis, the cabinet may waive all or part of the requirements of subsections (4) through (7) of this section if spoil is placed in pits where there is no potential for mass movement or substantial erosion.

(4) Design certification.

(a) The fill and appurtenant structures shall be designed using current, prudent engineering practices by a qualified, registered professional engineer experienced in the design of earth and rock fills who shall certify the design of the fill and appurtenant structures.

(b) The fill shall be designed and constructed to attain a minimum long-term static safety factor of one and five-tenths (1.5). The foundation and abutments of the fill and all other features shall be sufficient to ensure stability of the fill and appurtenant structures under all stages and conditions of construction.

(5) Stability.

(a) Stability analyses shall be performed by a qualified, registered professional engineer.

1. The cabinet shall approve parameters used in the stability analyses if the parameters are based upon adequate investigations of foundation and fill material, including field reconnaissance; subsurface investigations; and data obtained from laboratory analyses of the materials.

2. The cabinet may approve parameters based upon data obtained from sources other than laboratory analyses of the materials if that data would yield results which ensure compliance with the stability requirements of this administrative regulation.

3. The analyses of foundation conditions shall take into consideration the effect of underground mine workings, if any exist in the area, upon the stability of the fill and appurtenant structures.

(b) If the toe of the fill rests on an area which has a natural land slope in excess of 2.8h:1v (thir-

ty-six (36) percent) or a lesser slope as may be designated by the cabinet based on local conditions, keyway cuts (excavations to stable bedrock), rock toe buttresses, or a combination of these shall be constructed to ensure stability of the fill.

(6) Placement of excess spoil.

(a) Vegetative and organic materials shall be removed, either progressively or in a single set of operations, from the disposal area prior to placement of the excess spoil. Topsoil shall be removed, segregated, and stored and redistributed in accordance with Section 4 of this administrative regulation. If approved by the cabinet in accordance with 405 KAR 5:032, vegetative material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation, or increase the moisture retention of the soil.

(b) Excess spoil shall be transported and placed in a controlled manner in horizontal lifts of a thickness approved by the cabinet to ensure stability based on site specific conditions; concurrently compacted as necessary to ensure mass stability and to prevent mass movement during and after construction; graded so that surface and subsurface drainage is compatible with the natural surroundings; and covered with topsoil or substitute material.

(c)1. The final configuration of the fill shall be suitable for the approved postmining land use.

2. The top of the fill shall be graded no steeper than 20h:1v (five (5) percent) toward properly designed drainage channels in natural ground along the periphery of the fill. Surface runoff from the top surface of the fill shall not be allowed to flow over the outslope of the fill. The outslope of the fill shall not exceed 2h:1v (fifty (50) percent) or a lesser slope as may be required by the cabinet to ensure stability or minimize erosion, in accordance with 405 KAR 5:032.

3. Terraces may be constructed on the outslope of the fill. Terrace benches shall be graded with a three (3) to ten (10) percent slope toward the fill. The outslope between terrace benches shall not exceed 2h:1v (fifty (50) percent) or a lesser slope as may be required by the cabinet to ensure stability or minimize erosion, in accordance with 405 KAR 5:032E. Runoff shall be collected by a ditch along the intersection of each terrace bench and the outslope. This ditch shall route runoff to stabilized diversion channels and shall have a maximum slope that is no greater than 20h:1v (five (5) percent) unless a steeper slope is necessary for permanent roads in conjunction with an approved postmining land use and a steeper slope will not adversely affect the stability of the fill or result in excessive erosion.

(d) Impoundments shall not be allowed on the fill.

(7) Drainage control.

(a) The fill design shall include diversions and underdrains as necessary to control erosion, minimize water infiltration into the fill, and ensure stability except the cabinet may waive underdrain requirements for fills that are not hollowfills if it is demonstrated to the cabinet's satisfaction in the application that underdrains are not necessary because the disposal area does not contain any springs, manmade or natural drainways, or wet weather seeps and because seepage of water due to precipitation will not adversely affect the stability of the fill. Surface runoff from above the fill shall not be diverted through or under the fill.

(b) Surface water runoff from the area above the fill shall be diverted away from the fill and into stabilized diversion channels. Surface runoff from the fill surface shall be diverted to stabilized channels off the fill. Diversions associated with excess spoil fills and appurtenant structures shall be designed and maintained to safely pass the peak runoff from a ten (10) year, twenty-four (24) hour precipitation event, except that diversions associated with hollowfills and where flow from an intermittent or perennial stream is diverted the design event shall be the 100 year, twenty-four (24) hour precipitation event.

(c) Underdrains shall be constructed of durable, nonacid forming, and nontoxic forming rock; shall be free of coal, clay, and nondurable material; and shall be designed and constructed using current, prudent engineering practices. The underdrain system shall be protected from piping and

contamination by a filter system designed and constructed to ensure proper long-term functioning of the underdrain using current, prudent engineering practices. For hollowfills a subdrainage system for the fill shall be constructed in accordance with the following:

1. Be installed along the natural drainways;
2. Extend from the toe to the head of the fill; and
3. Contain lateral drains to each area of potential drainage or seepage.

(d) The cabinet may approve diversions located on fill material if necessary due to topography and configuration of the fill, if the cabinet determines that there will be no adverse impacts to the excess spoil fill, the public health and safety, and the environment.

(8) Surface area stabilization. During and after construction of the fill and appurtenant structures, slope protection shall be provided to minimize surface erosion at the site of excess spoil disposal and at the locations of appurtenant structures. All disturbed areas, including diversion channels that are not riprapped or otherwise protected, shall be revegetated upon completion of construction.

Section 6. Additional performance standards for mineral operations on slopes of more than twenty (20) degrees.

(1) The mineral permittee shall prevent the following materials from being placed or allowed to remain on the downslope:

- (a) Spoil;
- (b) Waste materials, including waste mineral matter;
- (c) Debris, including that from clearing and grubbing of haul road construction; and
- (d) Abandoned or disabled equipment.

(2) Nothing in this section shall prohibit the placement of material in road embankments located on the downslope, so long as the material used and embankment design comply with the requirements for roads and other transportation facilities in 405 KAR Chapter 5 and the material is moved and placed in a controlled manner.

(3) Woody materials shall not be buried in the backfilled area unless the cabinet determines that the proposed method for placing woody material within the backfill will not deteriorate the stable condition of the backfilled area. Woody materials may be chipped and distributed over the surface of the backfill as mulch, if special provision is made for their use and approved by the cabinet.

(4) Unlined or unprotected drainage channels shall not be constructed on backfills unless approved by the cabinet as stable and not subject to erosion. (30 Ky.R. 2432; 8-26-2004.)